

**Mattice, Alice**

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**From:** Ferrante.Joe@epamail.epa.gov  
**Sent:** Tuesday, February 10, 2009 4:20 PM  
**To:** Mattice, Alice  
**Subject:** Fw: transport paper NEW VERSION with Citation



EPA comments on  
COM TAD ENV JW...

Of course, right after I hit the send button, I got the attached from Brian. This version has the citation on the last page.

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Joe,

I found the citation that I had been looking for on the subject of diesel engine efficiency breakthroughs. I've inserted it into para 20 of Alice's markup of EPA's comments, which is attached below.

If you get bored, take a look at some of the presentations from the DOE's 2008 diesel engine-efficiency and emissions reduction (DEER) conference. Most of the presentations are chock full of engineering geek-ese, but it is still possible to grasp the implications. OAR/OTAQ folks say that this annual conference is one of the best, and Arman Tanman in particular raved about the possibility that engineers in several companies and labs may have found several ways of squeezing another 5-10 percent energy efficiency out of a diesel engine. The work currently is happening with light duty onroad diesel engines but if the technologies work there is no doubt that they will migrate into other larger, offroad and marine applications as well.

Brian

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(See attached file: EPA comments on COM TAD ENV JWPTE 2008 29\_am bkm  
edit.doc)

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Let's discuss.

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OK -- my effort within my one-hour rule. See if these look credible and consistent with EPA's. Other than these, I'm beyond my level of competence. . .

I tried again, and the line edits within the document are in many cases incomprehensible -- maybe the way doc is displayed, but comments don't seem to be linked to the relevant particular sections.

Commerce seems to believe that one of the studies heavily relied on -- Gehring -- is biased and not the best -- I noted that it wasn't limited to just air, also included IMO related stuff, and that EPA didn't comment. So didn't include. Would be happy to include suggestion that paper be more balanced and consider other sources, but Commerce needs to explain what is the bias and what other sources should be looked at.[attachment "EPA comments on COM TAD ENV JWPTE 2008 29\_am.doc" deleted by Brian Muehling/DC/USEPA/US]



EPA/OIA Comments on "Trade, Transport and Climate Change: An Interim Report"  
COM/TAD/ENV/JWPTE(2008)29

Big picture:

1. On balance we feel that this draft document offers useful, though admittedly incomplete, work. It builds on the mandate agreed to by the JWPTE last summer and it offers analysis and conclusions that should go out to a broad audience both within and outside the OECD.
2. The document could be improved upon in various ways. Above all, it will be essential to enhance the discussion of the work underway within the IMO and ICAO to address GHG emissions from international aviation and maritime shipping. We agree with the JWPTE's conclusion in Dec. 2008 [see COM/TAD/ENV/JWPTE/M(2009)1] that this material "... needed to reflect the totality of views in those groups." In particular, the report should more thoroughly present the differing views about the application of possible IMO measures to the entire global fleet or only those ships owned or flagged by UNFCCC Annex I Parties. This would then lead to an analysis by the OECD of the relative strengths and weaknesses of the various technological and policy measures under consideration in the IMO. Similarly, the ICAO has an extensive work program to develop international standards and recommended practices to mitigate the environmental impact of civil aviation. The discussion of aviation impacts should draw upon and better reflect insights and analysis from the ICAO work program.
3. The report also would benefit from more information on the work already underway to increase the energy efficiency of - and thus reduce the emissions from - the propulsion technologies employed in major freight transport modes. This information would then facilitate a more complete OECD assessment of the policy measures available to reduce GHG emissions from the domestic and international transportation of goods in trade. In particular, we note that the summary of "possible policy options" (para 89, Table 4) contains only regulatory options (elimination of subsidies, carbon taxes, inclusion of emissions in cap-and-trade schemes). The discussion should also reflect the role of incentive programs to increase the availability of better technologies and fuels. The cost-effectiveness of various measures should also be discussed.
4. The report also would benefit from a more consistent and neutral presentation of key facts about the energy efficiency of different freight transport modes. At present, the document contains a handful of statements that could appear to favor one mode over another.
5. Finally, it would be helpful to know what more would be needed before the document is ready to be circulated to participants in the Global Forum on Trade.

Specific comments:

1. Para 5 concludes that "Any policies aimed at mitigating increases in GHG emissions from transport induced by trade liberalization should therefore consider how developing countries can also be encouraged to improve their performance in this area." The U.S. believes that if multilateral measures to address GHG emissions from international aviation and maritime shipping are to succeed, developing countries must be an integral part of a binding global regime. Anything less would suffer from carbon leakage and induce trade distortions.
2. The paper states - e.g., in para 9 - that all transport contributes 23% of global anthropogenic CO<sub>2</sub> emissions and "only" 13% of total GHG emissions; moreover, international transport of goods contributes about 4% of total GHG emissions. What is the source for this estimate?

The phrasing is unfortunate because it seems to hint that transportation – in particular, the international transportation of goods – is a less serious problem as GHG sources go. In light of the most recent scientific findings about climate forcing and the possible need for even more dramatic reductions in CO<sub>2</sub> emissions, the report should not make statements that could be construed to minimize either the relative significance of the emissions from the transport sector or the need to reduce emissions from every sector. Moreover, para 11 of this same document notes that the international transport of goods has a domestic transport component.

3. Para 20 could be improved in three ways:
  - a. Clarify the first sentence so that the CO<sub>2</sub> emissions figure for water-borne transport is compared with CO<sub>2</sub> emissions from all international transport, not ‘transport’ overall. ‘Transport’ includes domestic passenger vehicles and other travel that have no bearing on goods movement, as illustrated by the discussion in para 19.
  - b. Change the end of the second sentence so that it refers to “... emissions from ships climbing to above 1000 million tonnes by 2050” and not “2005.”
  - c. The fourth sentence warns that the IEA’s BAU projection of emissions from air transport (in which emissions would increase three-fold by 2050) is not a forecast since rising energy prices and emissions control policies will reduce rates of growth below those in the BAU projection. There are other factors that also will reduce the rate of emission growth from the aviation sector. For example, Hummels notes in ITF/TMB/TF09(2009)<sup>1</sup> [Preliminary draft report: Globalisation and freight transport costs in maritime shipping and aviation] that European and American growth rates in international aviation have declined since 2000 as costs have increased, in part due to new security measures.
4. Para 26: The text cites Horton (2006) as the source of an estimate that civilian aircraft CO<sub>2</sub> emissions were 490 million tonnes in 2002, yet there is no citation in the entire document.
5. Para 44: This seems to downplay the short-term opportunities for employing operational measures on ships to improve energy efficiency and reduce emissions. Steaming at slower speeds is only one option. The text also should acknowledge that there are technological factors – not just market drivers for bunker fuels and shipping services – that may constrain the ability of ships to sail at slower speeds. Moreover, the use of wind kites to assist in propulsion, although exciting, is undergoing a very limited trial phase and there are questions about how widely and effectively such kites can be employed on the global maritime fleet.
6. Paras 45-46 could provide more information on other measures to enhance the energy efficiency of maritime ships. [See, for example, Wartsila’s “Boosting Energy Efficiency” report at [http://www.wartsila.com/Wartsila/global/docs/en/ship\\_power/energy-efficiency/energy-efficiency-catalogue-presentation.pdf](http://www.wartsila.com/Wartsila/global/docs/en/ship_power/energy-efficiency/energy-efficiency-catalogue-presentation.pdf).]
7. Paras 45-46 fail to mention the most obvious, readily-available measure to significantly enhance the energy efficiency of maritime ships: the capture and use of waste heat from engines. Wartsila, one of the two largest marine diesel manufacturers in the world, indicates that very few existing ships use this simple technology and very few new shipbuilding orders call for the use of a technology that Wartsila estimates would increase energy efficiency by 10 – 20 percent on a ship in any of the major vessel classes (e.g., container, tanker, bulk) involved in freight transportation.
8. Para 46: The first sentence should note that further improvements in the fuel efficiency of maritime shipping will depend not only on continued improvements in hull design and engine efficiency but also in overall ship-scale systems integration.



9. Box 1 [IEA Technology Agreements]: the last technology mentioned in this box is “hybrid and electric vehicles.” This listing also should note that hybrid technologies are not necessarily restricted to land-side applications; see, for example, the Foss Marine “Green Assist” hybrid tug boat: [http://www.foss.com/environment\\_hybridtug.html](http://www.foss.com/environment_hybridtug.html). Moreover, this listing should reference the broader suite of hybrid technologies, most notably the hydraulic hybrid drive system that US EPA and private sector partners have successfully employed in UPS and FedEx delivery vans and other applications. The most recent project involves the development of a prototype hydraulic hybrid version of the yard tractors typically found in ports, rail yards, and distribution centers around the world.

10. Para 71 preface the discussion of the proposed EU emissions limitation scheme by noting the agreement of ICAO members in 2007 to formulate an “implementation framework” consisting of strategies and measures that Contracting States of ICAO can use to achieve emissions reductions from air transport. The program will identify fuel efficiency goals and means of measuring progress. Options to be considered include voluntary measures, technological advances in both aircraft and ground-based equipment, more efficient operational measures, improvements in air traffic management, positive economic incentives and market-based measures. The Assembly agreed that market-based options are a valuable tool for addressing aircraft emissions. The majority of delegations thought, however, that States should not apply emissions trading systems to the airlines of other States except pursuant to mutual agreement.

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11. Para 73: This para cites aspects of international maritime shipping that must be understood before developing GHG controls.

- a. Item III: “The majority of the world’s bulk shipments either start or finish their journey in an Annex I [of the UNFCCC] country.” While this statement may well still be true, the dramatic economic growth of China, India and many other developing nations over the last decade or so may have altered the balance. Thus, this assertion should be reconfirmed. One also should look at the containerized movement of the typically higher-value intermediate and final manufactured goods among all countries.
- b. Item VI: This should be amended to reflect the recent development and adoption of amendments to the globally-applicable MARPOL Annex VI standards to control criteria air pollution from maritime shipping.

12. Para 74, first sentence: We do not completely agree with the statement that “Most of these characteristics” [set out in para 73 regarding maritime shipping] “(with the exception of IV) also apply to the international transport of freight by air.” Most notably, air freight does not carry bulk cargo, which is covered in factor III in para 73. Moreover, the last sentence of this paragraph notes that more and more air freighters will be based in the Asia-Pacific region in the future.

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13. Para 78: Footnote 13 to this paragraph properly notes that China and other developing countries have contested one key element of the framework proposed by the IMO MEPC, namely that the IMO GHG regime must be “binding and equally applicable to all flag States in order to avoid evasion.” However, to be complete and to allow the OECD to more thoroughly evaluate policy options that the IMO might employ, this report also should reflect the public statements by the IMO Secretary General that anything less than a global regime binding and equally applicable to all flag States (or all ships) would be a failure because it would lead to significant carbon leakage. [For example, the Secretary General’s remarks in

the Second Singapore Maritime Lecture, delivered October 16, 2008, are available at [http://www.imo.org/Newsroom/mainframe.asp?topic\\_id=1698&doc\\_id=10320](http://www.imo.org/Newsroom/mainframe.asp?topic_id=1698&doc_id=10320).] The current OECD document makes a somewhat comparable remark about the air-freight transport market in para 83; why, then, does it stay silent on this critical point regarding the maritime sector?

- | 14. Para 79, first line: change “considering” to “considered”. The third sentence, which describes some policy options under consideration at the IMO, should also refer to the possible establishment of an IMO requirement that ships to be built in the future must be more energy efficient than comparable ships being built and operating today. This requirement would build on the energy efficiency/CO<sub>2</sub> baseline and energy efficiency index scheme now under development.
- | 15. Para 85: The first sentence notes that McAusland (2008) highlighted wait times at land borders as an issue worthy of attention and capacity building in order to help reduce CO<sub>2</sub> emissions from road freight transport. In fact, this hints at the much larger issue of delays along the entire transportation supply chain due to congestion or a number of other factors. The report should note the importance of addressing these factors in order to speed up the entire supply chain, as this may well present new opportunities for specific transport modes such as maritime shipping to take complementary measures. The Alameda Corridor in the Los Angeles/Long Beach area is a dedicated rail freight transport corridor designed to avoid all other traffic in a heavily congested and polluted metropolitan area that also included the two largest ports in the United States. While not sufficient in its own right, the freight corridor clearly was necessary to help maritime carriers agree to ‘slow steam’ on their approach to the ports in order to reduce emissions. [See <http://www.acta.org/>.]
- | 16. Table 4, possible policy options to address CO<sub>2</sub> emissions from transport, needs to be expanded in several ways. First, it should set out the possible environmental impacts associated with various policy measures. To illustrate, the table should note the uncertainty about how much CO<sub>2</sub> emissions might drop if a uniform carbon tax were to be applied to all fuels used for transportation. Second, the table should list other policy options under consideration at the IMO or other venues, including the establishment of mandated energy efficient improvements in those ships that will be constructed at specified times in the future, as well as a voluntary (or mandatory) mechanism that develops energy efficiency management plans for existing vessels. Third, the table would be improved if it were to identify essential requirements for the success of any listed policy measure.
- | 17. We welcome and support the discussion set out in paras 92-93 about how lower transport costs promote the expansion of markets, greater market integration, and regional specialization, all resulting in increased trade flows. We hope to see more analysis of this theme and how the future internalization of climate-related externalities might increase the cost of transport and thereby alter the trend towards market expansion and integration.
- | 18. Appendix 1 (technological possibilities for reducing fossil-fuel use in freight transport) could be improved. For example, the discussion in paras 98 – 118 of options for maritime shipping could be improved by describing more of the technologies and operational measures that would reduce energy consumption, of which waste heat capture is the most significant near-term opportunity. [See Wartsila, for example.] Para 110 should note that testing of different biofuel combinations is underway in the Washington State Ferry System. [For example, see <http://www.wsdot.wa.gov/ferries/environment/biodiesel.htm>.].



19. The section on air transportation (paras 119-133) tends to focus on descriptions of benefits based on a particular technology or a specific company. In fact, all major aircraft, engine and part manufacturers are researching and incorporating environmentally friendly technology into their products, and extensive work programs exist in the ICAO and individual member states to develop and adopt operational improvements. The paper would benefit from a fuller discussion of such work; to the extent such information is not available, the discussion should be appropriately caveated.
20. The section on road transport (paras 134 – 142) should note that recent research may point to ways of further increasing the thermodynamic efficiency of diesel-powered propulsion systems. [See, for example, some of the presentations from the U.S. Department of Energy's 2008 Diesel Engine-Efficiency and Emissions Research (DEER) Conference, accessible at [http://www1.eere.energy.gov/vehiclesandfuels/resources/proceedings/2008\\_deer\\_presentations.html](http://www1.eere.energy.gov/vehiclesandfuels/resources/proceedings/2008_deer_presentations.html). The implications of this are significant, including for other transport modes that utilize diesel engines. This section should also mention some of the many other technological and operational measures now available through, for example, the US EPA SmartWay Transport Partnership to increase energy efficiency in diesel-powered freight transport [<http://www.epa.gov/smartway/>].
21. Para 144 provides information on how the fuel efficiency of freight trains has increased by 80% over the past 25 years. Absent a similar assessment of the evolution of fuel efficiency in the other transport modes (most notably ship and aviation), this statement could be taken to imply that the other sectors have not made much, or any, progress. This is not the case. The report should provide a comparable statement about the respective changes in fuel efficiency of the other freight transport modes.

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